CLAIMS:

1. An isolated, recombinant or synthetic DNA molecule encoding a mammalian GPI-anchored small leucine-rich proteoglycan.

2. The DNA molecule of claim 1 which is expressed in tissues including the kidney and the retina.

3. The DNA molecule of claim 1 wherein said DNA is cDNA.

4. The DNA molecule of claim 1 wherein said DNA is human DNA.

5. The DNA molecule of claim 1 wherein said DNA is murine DNA.

6. The DNA molecule of claim 1 wherein said DNA encodes nyctalopin; an amino acid sequence which is at least 50% homologous to nyctalopin; the amino acid sequence of SEQ ID NO:2; or an amino acid sequence which is at least 50% homologous to SEQ ID NO:2.

7. The DNA molecule of claim 6 wherein said DNA encodes the amino acid sequence SEQ ID NO:2 with conservative amino acid substitutions.

8. The DNA molecule of claim 1 wherein said DNA has the nucleotide sequence corresponding to SEQ ID NO:1.

9. An isolated, recombinant or synthetic DNA molecule or polynucleotide comprising a nucleotide sequence substantially homologous to SEQ ID NO:1 or a nucleotide sequence that hybridizes under stringent conditions to a hybridization probe having a nucleotide sequence of SEQ ID NO:1 or the complement of SEQ ID NO:1.

10. The polynucleotide of claim 9 wherein said polynucleotide is selected from the group comprising:

(e) RNA;

(f) cDNA;

(g) genomic DNA; and

(h) synthetic nucleic acids.

11. An expression vector comprising one of the DNAs of claims 1-10.

12. A cultured cell comprising the expression vector of claim 11.

13. A cultured cell comprising the DNA sequence of one of claims 1 to 10, operably linked to an expression control sequence.

14. A cultured cell transfected with the vector of claim 11, or a progeny of said cell, wherein the cell expresses a mammalian GPI-anchored small leucine-rich proteoglycan.

15. A method of producing a proteoglycan, comprising culturing the cell of claim 12, 13 or 14 under conditions permitting the expression of the proteoglycan.

16. The method of claim 15 further comprising the step of purifying the proteoglycan from the cell or the medium of the cell.

17. A purified polypeptide having an amino acid sequence comprising one of:

(a) SEQ ID NO:2;

(b) SEQ ID NO:2 having at least one conservative amino acid substitition; or

(c) an amino acid sequence which is at least 50% homologous to SEQ ID NO:2.

18. A purified mammalian GPI-anchored small leucine-rich proteoglycan which is expressed in tissues including the kidney and the retina.

19. An antibody that specifically binds to an epitope of any one of the polypeptides of claims 17 or 18.

20. The antibody according to claim 19 wherein the antibody is a monoclonal antibody.

21. A hybridoma secreting the monoclonal antibody of claim 20.

22. A method of detecting or characterizing in a biological sample any one of the DNAs of claims 1 to 10, or the polynucleotides of claims 9 or 10, wherein said method comprises a step selected from the group consisting of:
(a) direct DNA sequencing;
(b) analysis of restriction length polymorphism ;
(c) single-stranded conformation analysis ;
(d) RNAse protection;
(e) the use of proteins that recognize nucleotide mismatches, such as the E. coli mutS protein;
(f) single nucleotide extension assays;
(g) microchip technology analysis;
(h) Northern blot analysis;
(i) Southern blot analysis;
(j) dot blot analysis;
(k) PCR analysis;
(l) fluorescent in situ hybridization analysis; and
(m) two-step label amplification analysis.

23. A diagnostic kit for detecting or characterizing in a biological sample any one of the DNA molecules of claims 1 to 10 or the polynucleotides of claims 9 or 10, wherein:
(a) a means is provided to detect or characterize in a biological sample any one of the DNAs of claims 1 to 10, or the polynucleotides of claims 9 or 10; and

(b) said means is selected from the methods of claim 22.

24. A method of screening molecules which affects expression or production of nyctalopin wherein said method comprises the step of exposing primary or *NYX* transfected cells to a drug candidate and determining the level of transcription or translation of *NYX* gene products.